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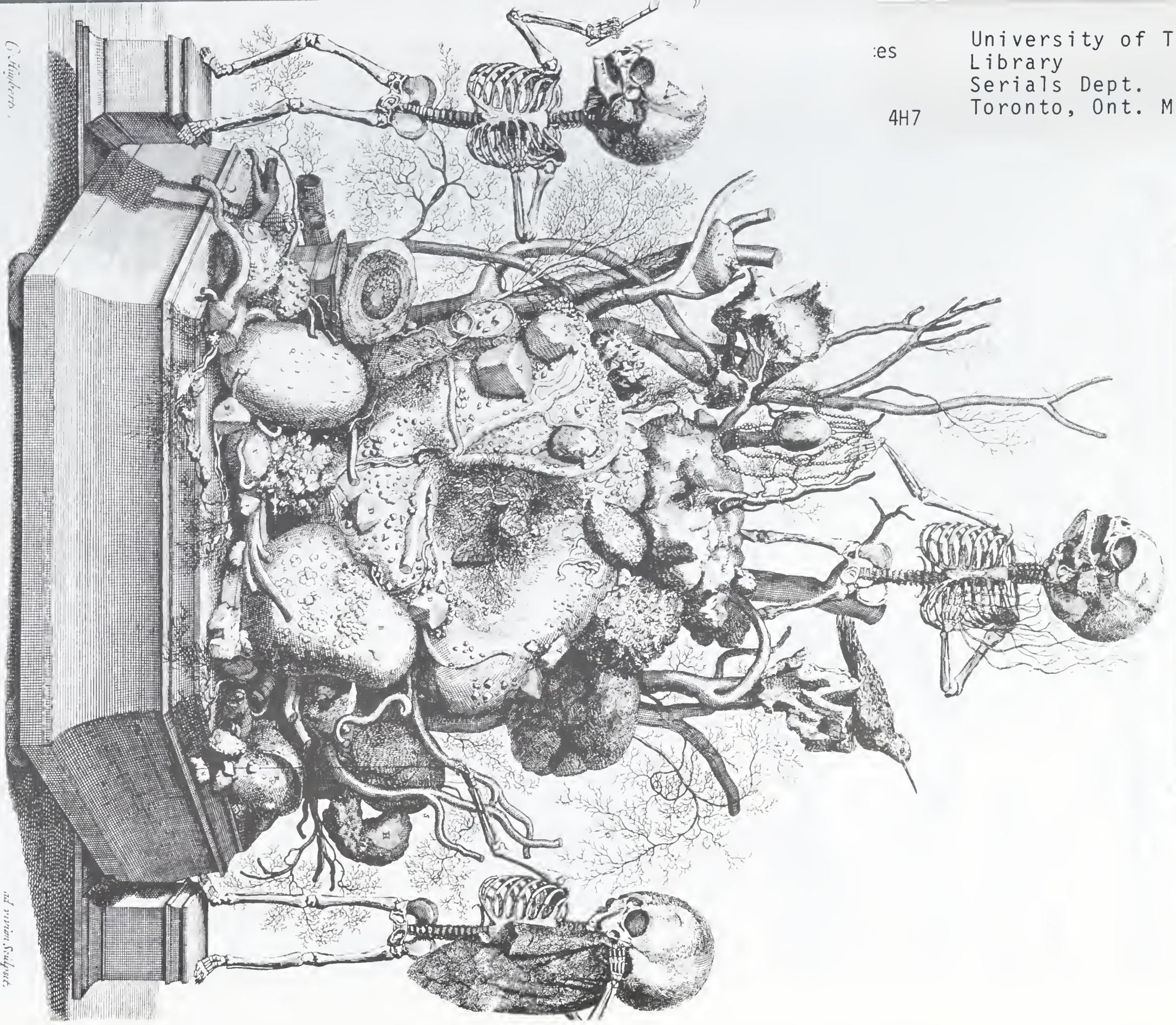

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1) All articles intended for publication should be submitted to the editors before the deadline which is usually *six* weeks before the release of the Journal.
2) Submitted articles should be typed (or legibly printed) double-spaced; single-sided on paper 8½" x 11" (letter size) and they should not be more than 15 to 20 pages (3000 to 4000 words).
3) Illustrations, graphs, diagrams and figures should be put on a separate sheet and identified by Arabic numerals. A list of explanatory legends for all the figures and diagrams should be put on another sheet. Do not write on the back of photographs.
4) References should be checked with the original sources, designated by Arabic numerals in the text, numbered in order of appearance and put on a separate sheet. Each periodical reference should include in order: the author's name and initials, title of the article, Journal name, volume number, page number and year. (eg., 1. Rosen HJ: Lumbar invertebral disc surgery: review of 300 cases. *Can. Med Assoc J., 101: 317, 1969.*)
5) The editors reserve the right to make such editorial changes as are deemed necessary to ensure correctness of grammar and spelling, clarification of statements and conformity to Journal style.
6) Acceptance for publication is subject to the understanding that such material is submitted solely to the Journal and will not be reprinted without the consent of both the editors and author.

P78-0727 (81)

Maimonides: Philosopher and Physician

Anne R. Crowe

Maimonides, or Moses Ben Maimon, was born on the eve of the Passover, in 1135 A.D.[1] He was the son of a Talmudic scholar, astronomer and mathematician, who came from a long line of distinguished philosophers and rabbis.[2] Maimonides was fortunate enough to be born in Cordova, a medieval Spanish city that had been under Moorish rule since the eighth century A.D. The Moors were tolerant Moslems, who established Cordova as a wealthy centre of culture and civilization, accepting both Christians and Jews into their intellectual circles. While Christian Europe was in the grip of ignorance and superstition, Arab philosophers were both studying and advancing the work of Aristotle and other ancient philosophers and scientists, and establishing the basis of modern algebra, astronomy and physiology. Thus Maimonides was taught Jewish theology and philosophy by his father, Maimon, but was also exposed to the most contemporary philosophy, mathematics and medicine.[2]

Moché Ben Rabbi Maimoun (Maïmonide)
Mars 1135 - Décembre 1204
from Huitieme Centenaire du Maimonide

However, these idyllic circumstances came to an abrupt end when Maimonides was only thirteen, as the fanatical Almohades sect conquered Cordova. They ordered Jews and Christians to convert to Islam or to accept martyrdom.[3] Eventually Maimonides and his family were forced to move and spent a decade wandering around Spain, trying to find refuge from the fanatics who were sweeping across the country. Somehow during this unstable period, the young scholar started his first great Jewish philosophical work, a commentary on the Mishnah which took him ten years to complete.[4] In 1158 A.D., when Maimonides was twenty-five, the family moved to Fez, Morocco, despite the fact that this city was also controlled by the Almohades. However, it was here that he studied medicine with the famous Arabic physician, Ibn Zuhr.[5] Here the family outwardly lived as Arabs, maintaining their Jewish religion in private. In 1162 A.D., a letter from an anonymous rabbi was circulated in Fez that created panic among the Jewish population. The rabbi said that Jews who bowed to circumstance and uttered Moslem prayers in public could be considered to have deserted their religion, whatever their private beliefs, and that the only acceptable course was to seek martyrdom. To quell the fears of the Jews, many of whom were about to desert Judaism entirely, Maimonides wrote a reply that explained the distinction between

outward action and inward belief, and stated that, despite public prayers to Allah, private prayers to God would be accepted. Because of this letter, Maimonides attracted the attention of the authorities and he and his family were forced to flee Fez.[2] First they moved to Palestine, where the tiny Jewish community, under Christian rule, offered little to a distinguished scholar.[3] Finally, the family moved to Egypt in 1166 where Maimonides found a haven and lived the rest of his life.[2]

Maimonides was already recognized as a great scholar in the Jewish community, although he was only thirty-one. In 1168, he finished his commentary on the Mishnah, and began an arduous task, a complete codification of Jewish law. This work, which took him only ten years to finish, despite his many other interests, is still in use today.[4]

Although Maimonides studied medicine as a youth, as did many contemporary philosophers and mathematicians, he did not start to practice as a physician until after 1170 A.D.[4] In that year both his father and younger brother, who had been supporting him with their jewelry business, died, leaving him to support his brother's wife and family, and the rest of his own family.[2] In order to earn enough, he became court physician to the vizier to the great sultan Saladin, who ruled Egypt in Saladin's name. For him, he wrote his treatise on poisons, intended to be a first-aid handbook for snakebites, scorpion stings and other problems that commonly caused fatalities in Egypt.[5]

In 1198, when Saladin died, Maimonides became chief physician to his son, for whom he wrote several medical works. His fame as royal physician spread so widely in Mediaeval Europe that he was asked to become physician to King Richard the Lionhearted, an honour he refused.[5]

A glimpse of his daily life as royal physician and of his humanitarianism is given in a letter to a friend:

I live in Fostat and the Sultan resides at Cairo. My duties to the Sultan are very heavy. I am obliged to visit him every day, early in the morning, and when he or any of his children or any of the inmates of his Harem, are indisposed. I dare not leave Cairo, but must stay during the greater part of the day in the palace. It also frequently happens that one or two of the royal officers fall sick, and I must attend to their healing.

When I return to Fostat in the afternoon I am almost dying with hunger. I find the ante-chambers filled with people, both Jews and Gentiles, nobles and common people, judges and bailiffs, friends and foes--a mixed multitude, who await my return. I dismount, wash my hands, go forth to my patients, and entreat them to bear with me while I partake of some slight refreshments, the only meal I take in the twenty-four hours. Then I attend to my patients, and write prescriptions and directions for their several ailments. Patients go in and out until nightfall, and sometimes even, I solemnly assure you, until two or more hours in the night. I converse with and prescribe for them while lying down from sheer fatigue, and when night falls I am so exhausted that I can scarcely speak.

In consequence of this, no Israelite can have any private interview with me except on the Sabbath. On that day most of the congregation come to me after the morning service, when I advise them as to their proceedings during the whole week; we study together until noon when they depart. Some of them return and read with me after the afternoon service until evening prayers. In this manner I spend the day.[2]

Somehow, despite his heavy duties, he managed to write a total of ten medical works, a work on logic, which he considered to be an absolutely essential basis for medical practice, and also finished his codification of Jewish law.[2] Finally, he wrote "The Guide to the Perplexed", which was intended to reconcile faith and reason,[4] something very important to a person who was both one of the world's greatest theologians and one of its greatest physicians. This work was widely used, not only by Jews, but also by some mediaeval Christian and Muslim theologians.

Maimonides was married in 1184, to the sister of a secretary to one of Saladin's wives.[2] He rarely mentioned women in his work, except as a necessary adjunct to sexual intercourse. His mother is never mentioned in his letters, although both his father and brother are frequently named. His attitude towards women is perhaps summed up by this glancing reference: "Exaggerated emotions can only produce changes in the ignoble masses, who possess no wisdom, no philosophical principles and no theoretical morality, like children, women, and the stupid".[5] However, it is necessary to consider Maimonides in relation to his times--when the women he knew were either Jewish housewives or Arab concubines, neither of whom were offered any education.

Despite debilitating illness, Maimonides lived to the age of seventy, writing books, teaching students in a government-supported hospital,[4] and practicing medicine. Incidentally he seems to have completely ignored the medical advice he offered others. His death was generally mourned in Muslim, Jewish and Christian circles. For burial, his body was sent to Palestine.[6] His influence lasted many centuries, both in philosophical and medical circles. Even today he is well known to Talmudic scholars, although sadly the rest of the world has largely forgotten him.

Medical Works

Maimonides, the physician, was remarkable for a number of reasons. Most of his works were written not for other physicians but for his Arab patrons, to serve as their guide in health and sickness when no experienced physician was available. In them, he not only quoted from ancient masters such as Hippocrates and Galen and from his own teacher, Ibn Zuhr, but he stressed his own personal experience.

Maimonides is most notable for his emphasis on preventive medicine and psychosomatics. He recognized that most of his pharmacopeia was based on tradition and superstition and largely worthless, if not positively dangerous. Thus, on the subject of amulets and charms, he said: "Do not be deceived by this abracadabra. The holy names which they inscribe upon their charms have not the

slightest power to cure disease. These quacks are nothing better than self-deluded fools. They are probably sincere in their belief that their hocus-pocus possesses medical power, but a sincere madman is just as dangerous as one who is insincere."[2]

Even when medicines were efficacious, Maimonides recommended Aristotle's observation "that many die from medication because of the ignorance of the physicians in understanding nature....it becomes clear that it is proper to leave the patient to nature when there is no good physician....One should not take a medication that healthy people are not used to taking...One should not employ drastic medication unless it is upon the advice of a very, very adequate and experienced physician...whose experiences cannot be doubted."[5] Maimonides attached so many prohibitions to the popular practice of bloodletting--that it should not be done in winter or summer, or on the old--that one almost thinks that he did not quite have the courage to ban it entirely, but sought to eliminate it by attrition. Diet was very important during sickness. Maimonides recommended eating small amounts of one's regular food, especially the lighter kinds of food. Chicken soup was specifically recommended, which is perhaps where the traditional Jewish mother's panacea originated.[5]

"The Preservation of Youth" was written for the ruling Sultan and is concerned mostly with the efficacy of diet and exercise. The Sultan seems to have suffered from constipation, headaches and depression. Maimonides made a few quick observations:-"Hippocrates implied in the care of health, two rules...to avoid oversatiety and fatigue", "to partake a little of bad food is less harmful than eating a lot of good and healthy food", and "exercise removes the harm caused by most bad habits which most people have". Then he illustrated his admonitions with this comparison: "If a man would take care of his body as he takes care of the animal he rides on, he would be spared many serious ailments. For you will not find a man who would give too much hay to his animal, but he measures it according to its capacity. However, he himself will eat too much without measure and consideration. Man is very attentive to his animal's movement and fatigue in order that it should continue in a state of health and not get sick, but he is not as attentive to his own body."[5]

Maimonides must also have had some concept of contagious diseases and the relatioship between pollution and disease. Again in "The Preservation of Youth", he says, "The quality of urban air, compared to the air in the deserts and forests is like thick and turbulent water compared to pure and light water. And this is because in the cities with their tall buildings and narrow roads, the pollution that comes from their cattle and the stench of their adulterated food, makes their entire air malodorous, turbulent, reeking...let the house be tall and the court wide enough to permit the northern wind and the sun to come through, because the sun thins out the pollution of the air and makes it light and pure. And one should place the privy as far as possible from his permanent residence." Maimonides warned against food poisoning, "One must avoid, at any place and at any time, partaking of a food which has begun to decompose even slightly or become turbulent, malodorous, slightly warm or decayed...They are materials that produce fever and are likely deadly poisons. And the good physicians warn against eating food that has remained overnight...because it has begun to deteriorate, even though it does not immediately appear so."[5]

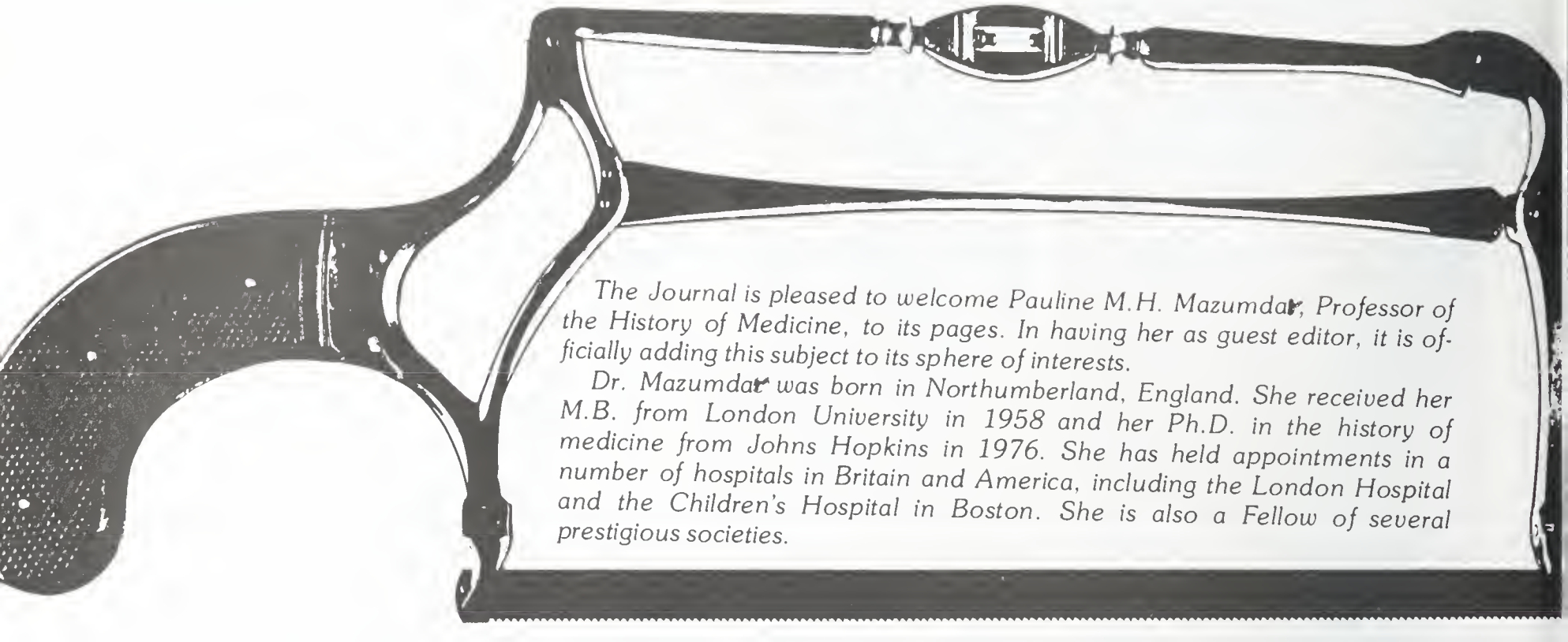
An important theme in Maimonides's work is the relationship between the health of the body and the soul. "It is well known to our master(the Sultan, who had ordered the work) that the emotions of the soul affect the body and produce great, significant and wide-ranging changes in the state of health. Physicians therefore advise that the emotions of the soul be watched, regularly examined and kept well-balanced. The physician should see to it that the sick and healthy alike be of cheerful disposition; emotions that cause upset and disorders should be smoothed out. This is essential for the cure of every patient, and especially the cure of mental cases like hypochondriacs, depressed and melancholy patients. Likewise in the case of a patient who is afflicted by hallucinations or nervous anxiety in matters that should not cause distress, or by lack of cheerfulness in matters that usually cause joy, the physician should employ no treatment before he removes the irritating condition."[5]

Maimonides also stressed this theme in his book "On Sexual Intercourse", again written for the Sultan. This gives an interesting twist to the romantic notion that the sultans with many wives and concubines must have led a thoroughly enjoyable life. "The sublime Master, may the Lord give him enduring power, has instructed me to prepare for him a guide to aid him in the increase of sexual intercourse, since he mentioned that he has need thereof, and his nature tends somewhat to heat. He reports, may the Lord preserve his power, that he desires to give up nothing of his habits in connection with sexual intercourse, although the servant(Maimonides) has called attention to the meagerness of the Lord's body, so that he is near emaciation. He desires this addition on account of the increase of a large number of concubines. What the master desires...is that, only that be mentioned in the guide which can be done easily and with little effort."[4]

Perhaps it was Maimonides' religious and scholastic ascetiscism that led him to the admonition, in his book, "On Asthma", (which actually covered a far wider range of subjects), that "coitus does much harm to many people and excess harms all people."[4] However, he adds that "Doctors state the reverse also. There are those that become lazy, their spirit is broken, have difficulty in digestion, and if he copulates his soul broadens, he becomes happy and his zest for life is awakened."[4] Before listing various aphrodisiacs and describing techniques of massage, Maimonides described how emotions affect sexual prowess. "And so joy, merry-making, jubilation, rest and not overly long sleep are very beneficial in this respect, whereas on the contrary, the following is very harmful, as worry, grief, sadness, continuous silence, exertion and

(continued on page 86)

Guest Editorial



The Journal is pleased to welcome Pauline M.H. Mazumdar, Professor of the History of Medicine, to its pages. In having her as guest editor, it is officially adding this subject to its sphere of interests.

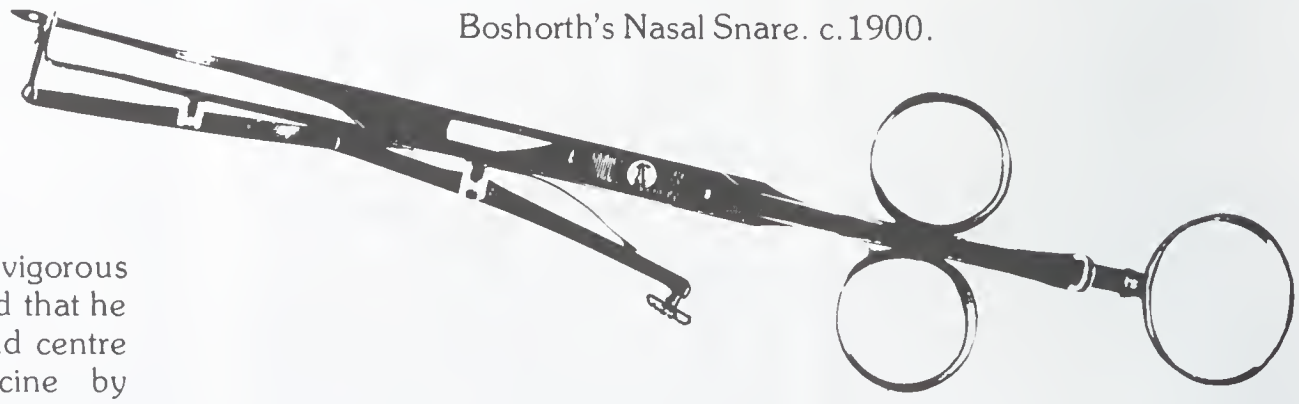
Dr. Mazumdar was born in Northumberland, England. She received her M.B. from London University in 1958 and her Ph.D. in the history of medicine from Johns Hopkins in 1976. She has held appointments in a number of hospitals in Britain and America, including the London Hospital and the Children's Hospital in Boston. She is also a Fellow of several prestigious societies.

Amputating Hacksaw with Moveable Blade. c.1870.

In 1972, when the functions of private medical insurance companies in Ontario were taken over by the Provincial Government, Associated Medical Services, the creation of Dr. Jason A. Hannah, was left with a large 'sinking fund'. Dr. Hannah was extremely proud of its success-many physicians remember him arguing out their diagnosis and their bills-and the fund, according to Dr. Hannah, was over twelve million. He himself was interested in the history of medicine. He had made a large collection of nineteenth century surgical instruments, which he had given to the Toronto Academy of Medicine, and a collection of rare books, which he had given to the University of Toronto. But his enthusiasm needed more vigorous action than that. He decided that he would make Ontario a world centre of the history of medicine by founding Chairs at the five medical faculties in Ontario. Before his death in May 1977, all five Jason A. Hannah Professors of the History of Medicine had been appointed.

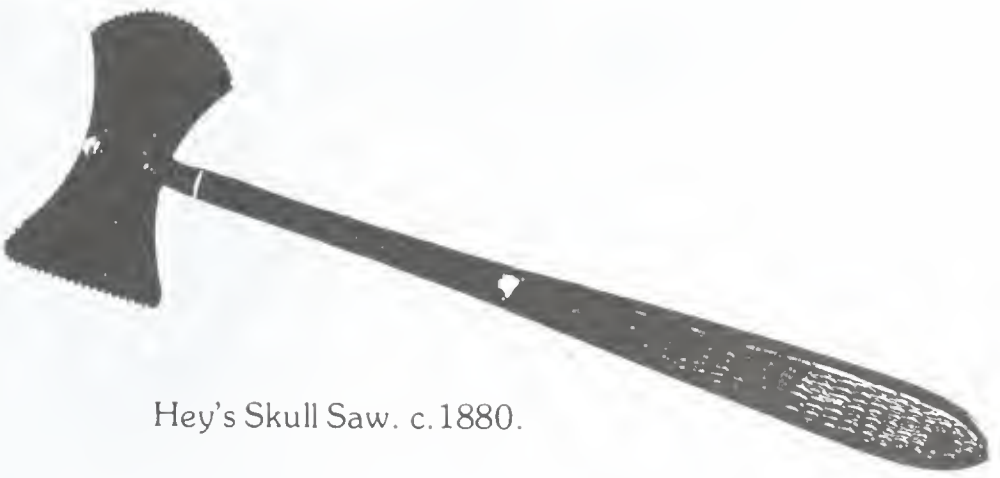
My first contact with the history of medicine came in 1970 in an immunology course. I was working for the British Blood Transfusion Service in London, and hearing that a course had been started in a local university, I went along. Immunology was a new subject, renewed, in fact, by the work on the thymus and its cells which had just started to come out. The course began with four lectures on the history of the subject, and I became immersed in the life and thought of the immunologists of the 1890's-I even learned German-and I wrote some papers, rather amateurish ones. A senior historian to whom I showed them, tactfully suggested I should get a proper training. I asked for leave from the Transfusion Service, but did not get it; the Board knew, they said, that I would never come back. So I cut loose from my job in the National Health Service-from my life appointment, and from my pension-and from a profession of 22 years standing, left England, to go to Johns Hopkins University Institute for the History of Medicine, and to write a thesis on the history of Immunology. The subject was Karl Landsteiner and the history of immunological specificity. Not much of cutting loose, from blood transfusion, but it felt very different indeed. Without my husband's support, I would never have dared to do it at all.

Boshorth's Nasal Snare. c.1900.



Old surgical instruments from the Collection at the Museum of the Academy of Medicine, Toronto, courtesy of the Curator, Mr. John Senior.

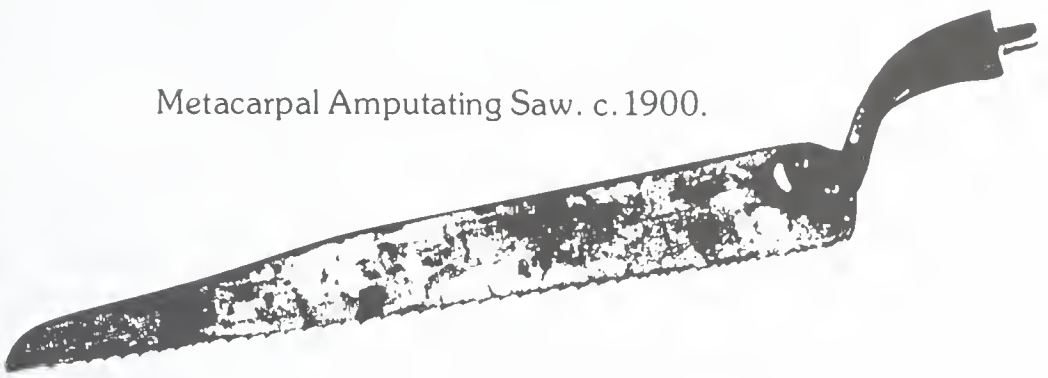
It was there that I began to understand what I now feel to be the importance of the history of medicine to those who practice medicine. We easily assume that the medicine we are taught is the final synthesis-all true, all based on clean, unbiased observation,-in short, a pure science. We are not aware of how the science is molded by its time, by the society in which it is practiced. We do not notice how the observations are built around theoretical assumptions, which change from era to era, with the changes of social and political climate. These are features which are true of every science, but most particularly of medicine. As the XIXth century pathologist Rudolf Virchowsaid, "medicine is a social science, and politics nothing but medicine on a large scale."[1]



Hey's Skull Saw. c.1880.

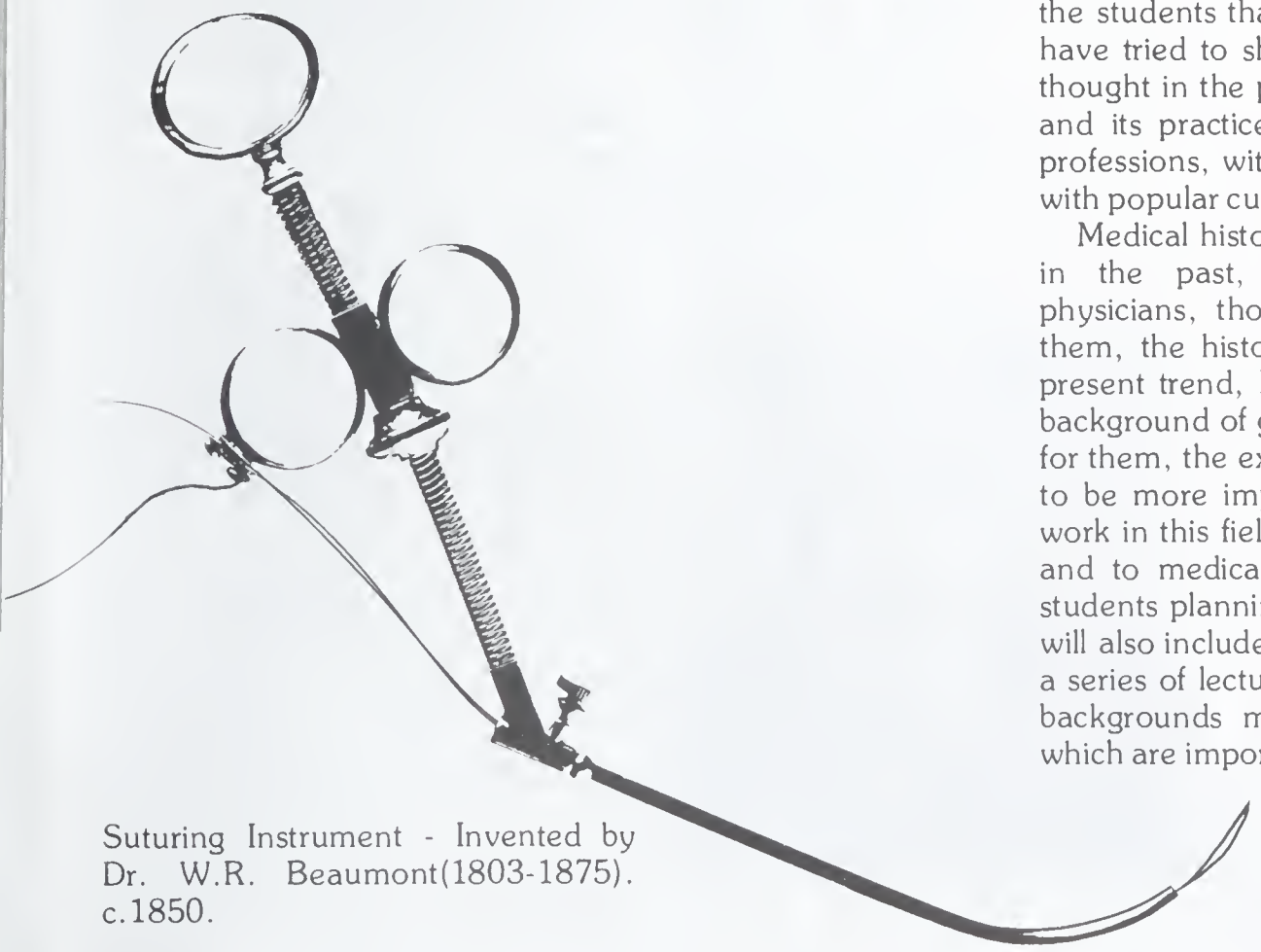
The history of medicine is important not as a cultural gloss for the chic physician, but as a means of increasing our awareness of the pressures of our own time. We cannot understand our times except by comparing with the past. Our own short experience is not enough for us to be aware of the major historical changes, such as those in the theoretical assumptions guiding our observations, or in the social pressures which mold our professional lives.

Metacarpal Amputating Saw. c.1900.



It has been this awareness of medicine in its contemporary setting that I have been trying to put across to the students that have come to my seminars this year. I have tried to show them, not just what great physicians thought in the past, but how medicine in both its theory and its practice interacted with society and with other professions, with its high university culture and the state, with popular culture and the people.

Medical history belongs to both medicine and history; in the past, most medical historians have been physicians, though often not practicing ones, and for them, the history has a special personal meaning. The present trend, I think, is towards more people from the background of general or social history entering the field; for them, the external relationships of the profession tend to be more important. But both kinds of historian can work in this field. I am offering courses both to residents and to medical students(as electives) and to graduate students planning to work towards a PhD. Next year we will also include premedical and other undergraduates in a series of lectures. This is a field in which peoplefrom all backgrounds may find that they can achieve insights which are important for their personal intellectual growth.



Suturing Instrument - Invented by Dr. W.R. Beaumont(1803-1875). c.1850.

1. Virchow, R., *Gesammelte Abhandlungen aus dem Gebiet der oeffentlichen Medizin und der Seuchenlehre* 2v. (Berlin 1879) Vol. 1, p. 34. (cited in Ackerknecht, E., *Rudolf Virchow, doctor, statesman anthropologist.* (Madison, U. of Wisc. Press, 1953) p. 46.

The Neuron Connection

Felix Tyndel

The neuron theory was a neatly circumscribed event in the history of neurology. It was also an intensive campaign waged on fields at once microscopic and international.

The nervous system consists of structurally independent cells called neurons. This apparently self-evident concept is designated the neuron theory and it represents the winning of a half-century old arguement. The losers-and I use the term advisedly-coined words like syncytium, network, and reticulm to describe their view of nervous histology.

Otto Fredrich Karl Deiters, when he died at age 29 in 1863, had established a working definition of the nerve cell, "a cell which bears on its soma one axon and several dendrites."[1] He ventured to muse on the relationship between cells: "Since cells are not connected by means of the protoplasmic processes[dendrites], and since a simple union of different fibres without the intervention of cells is hardly sufficient...one necessarily falls back upon the fine nerve fibres which ramify and therefore may well unite."[2]

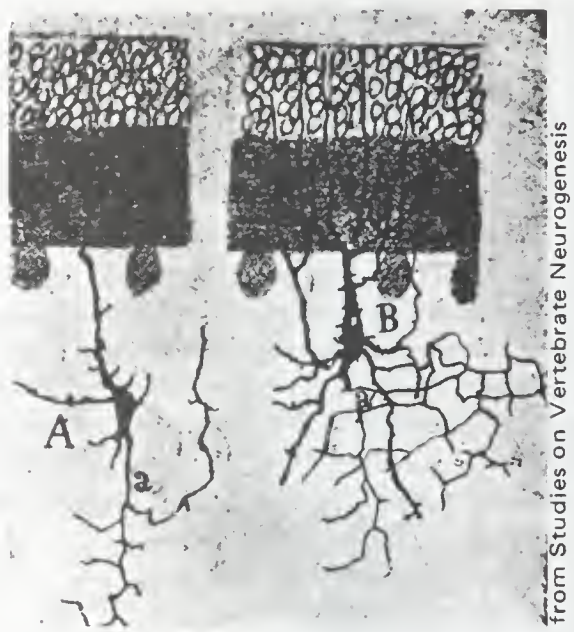
Taking this hint a step further, Joseph von Gerlach brought the nerve net theory into being. In 1872, the German anatomy professor proposed that Deiters' protoplasmic processes or dendrites formed a plexus joining all cells. The plexus gave rise to a coarser network of axons. All this had been derived on the basis of his own discovery of carmine as a stain for animal tissues.[3]

The University of Pavia's professor of histology, Camillo Golgi, published a paper in 1883, which used his method, "that of black staining, obtained by the combined action of potassium bichromate and silver nitrate",[2] to dismiss Gerlach's dendrite plexus. He conceived, instead, a gray matter network made of fibrils from his Type I cell's long axons, the Type II cell's short axons and certain afferent fibres.

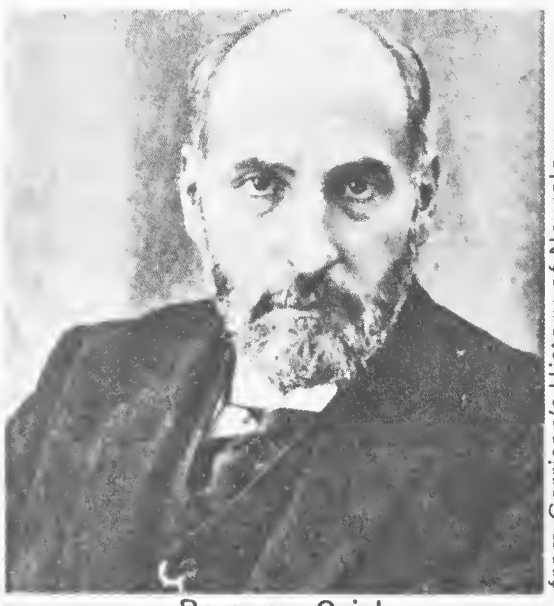
It is generally understood that the first real evidence for the neuron theory originated with the Swiss scientists His and Forel. Wilhelm His had studied with Virchow, Brown-Sequard and Bernard. Working with human embryonic spinal cord, he was able to demonstrate the individuality of the nerve cell and its fibre.

August Forel was professor of psychiatry in Zurich. Somewhere in between his youthful studies of ant behavior and the later investigation of sexuality came the fundamental work to advance the cause of the neuronal unit. He used Golgi's stain and von Gudden's technique of retrograde degeneration to refute Golgi and to show that nerve cells, though in contact with one another, are not in continuity.[4]

It remained for Spain's Ramon y Cajal to put the stamp of finality on the proceedings. "My work consisted just in providing an objective basis for the brilliant but vague suggestions of His and Forel."[5] While Golgi had applied his staining technique to embryos, he apparently did not appreciate the possibilities seen later by his rival. Free of the obstacle of myelin sheath, the "inter-neuronal articulations" stood out clearly.

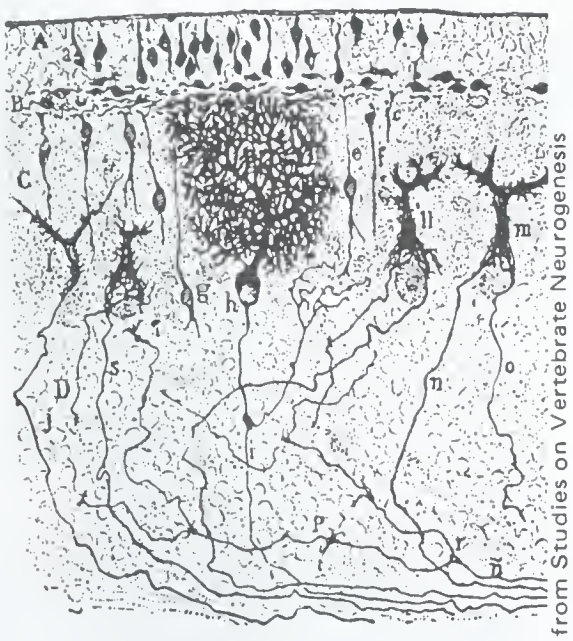


Cerebellum of a newborn cat. Golgi Method.



Ramon y Cajal

Cajal founded his own journal so he would be unencumbered by the slowness of the usual vehicles of publication. The connection of nerve cells was elucidated in a number of settings. In the avian and mammalian cerebellum, he described how stellate cell(molecular layer) axons divide into terminal fringes which form baskets around the Purkinje cells; how the endings of mossy fibres articulate with granule cells; the path of granule cell axons which he termed parallel fibres; the embrace of Purkinje cell dendrites by climbing fibres. Other examples include the connection among the various neurons of the retina with reference made to the direction of nerve im-



Cajal's drawing from his own preparation. Transverse section of the cerebellum of a 16-day old dog.

pulse(ultimately his principle of dynamic polarization); free endings in the spinal cord; complex yet free branchings of the optic nerve in the optic lobe of birds.

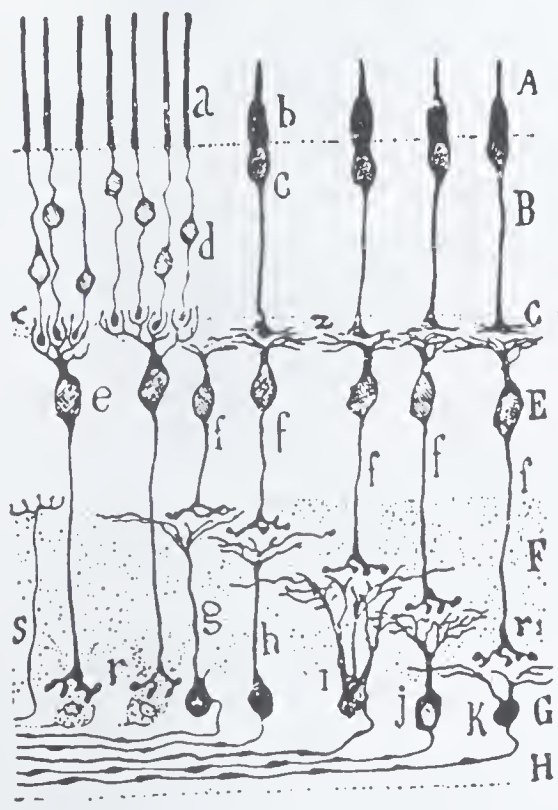
He concluded that:

(1) axons end in the gray matter, not in a diffuse network, but freely

(2) axonal branches make some sort of contact with cell bodies and dendrites

(3) the latter receive and propagate nervous impulses and don't merely provide the axon with nutrition

(4) continuity of substance being excluded, the nerve impulse is transmitted by contact or by an induction effect.



Transverse section of a mammalian retina.

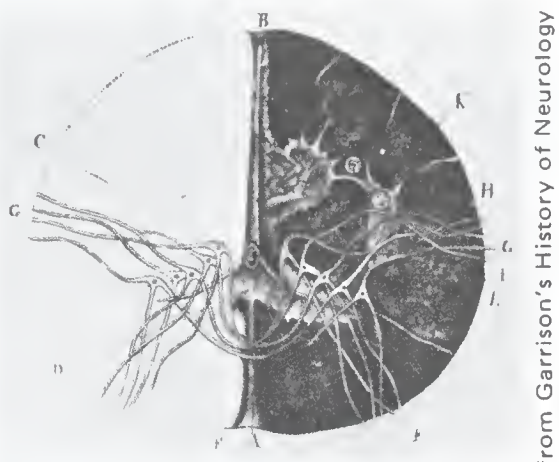


Diagram by Claude Bernard (1858) demonstrating the reticular theory.

Of the nerve net theory, Cajal had this to say: "The whole matter is reduced to taking for granted that the final axonal branchlets, after several dichotomies, are lost or disappear in the aforesaid interstitial network; in that sort of unfathomable physiological sea, into which, on one hand, were supposed to pour the streams arriving from the sense organs, and from which, on the other hand, the motor or centrifugal conductors were supposed to spring like rivers originating in mountain lakes....it did away with all need for the analytical effort involved in determining in each case the course through the gray matter followed by the nervous impulse."[5]

Cajal continued to fight "in this rude battle on behalf of truth." Golgi caused considerable embarrassment at the presentation of their joint Nobel prize in 1906 by expounding his old theories and attacking Cajal. Cajal graciously acknowledged the debt he owed Golgi's discoveries. Even afterward, in 1907, he was forced to ward off the vindictive onslaught of reticularists Held and Apathy.

In 1891, Waldeyer summarized the data from both sides and came up in favour of the neuron. Indeed, it was he who introduced the word. His paper had great influence in increasing the acceptance of the neuron doctrine and explains the somewhat exaggerated credit he has received for his part in the conflict. In this context, a University of Toronto graduate and successor to Osler at Johns Hopkins, Lewellys Franklin Barker, played a Waldeyer-like role for the English-speaking world with his book *The Nervous System and its Constituent Neurons.*[2]

There is a vignette to this story that seems worth relating. It regards a young medical student named Sigmund Freud. It appears that Freud came just short of expressing the neuron theory himself. He had been researching the nervous systems of *Petromyzon*, a fish, and of the crayfish, in Brucke's physiology laboratory from 1877 to 1881. In his summary paper, he wrote: "If we assume that the fibrils of the nerve have the significance of isolated paths of conduction, then we should have to say that the pathways which in the nerve are separate are confluent in the nerve cell: then the nerve cell becomes the 'beginning' of those nerve fibres anatomically connected with it....we could imagine that a stimulus of a certain strength might break down the isolation of the fibrils so that the nerve as a unit conducts the excitation, and so on."[6,7] (Freud went on to other pursuits.)

Told in its entirety, the tale would include parallel accounts of new stains and better microscopes. But these are, like the wooden horse in the Iliad, simply means to the ends of the central characters.

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Paleopathology

Molly Wills

The frail tissues and bones of paleopathology tell us more than how their owners died; they tell us who we are. Our ancestors have given us their bodies, literally and in our own flesh. In disease no less than in genes, they are part of our lives and will determine our deaths--and many of their diseases have left signatures so plain as to be indistinguishable from those we see in the hospital every day.

There is little surprise in discovering our ancestors died bearing traces of tuberculosis, cancer, atherosclerosis, parasitic infestation, or rheumatoid arthritis. Equally to be drawn from their bones, though, are messages about their way of life, their characteristic postures--whether they squatted by the fire, leaned over their hoes, fired slings, or rode under the sword and shield--and their diets, the arrival of new diseases such as syphilis, the pattern and toll of epidemics, the effects of chronic or recurrent ill-health, and the persistence of certain genetic traits through many generations. Preserved for thousands of years by the chemical action of peat bogs, the bodies of men sacrificed to a pagan return of spring tell us as much about ideas of mortality as can Egyptian burial practices. And the discovery that men were dying three thousand years ago with evidence of air pollution, coal dust and textile fibres in their lungs, shows us just how unique are our present environmental and occupational risks.

Mummies

At the Medical Sciences Building of the University of Toronto, an international multidisciplinary team carried out an autopsy in August, 1974, revealing a spectacular number of pathological processes at work in Nakht(ROM I), a 16-year-old Egyptian weaver who died 3200 years ago.[1] The autopsy findings included early liver cirrhosis, an enlarged spleen that may have ruptured, and erythrocytes in the bladder, all possibly secondary to schistosomiasis; ova of *Schistosoma* species in liver, kidney, and small and large bowel; ova of *Taenia* species in bowel; *Trichinella spiralis* cysts or cysticercosis(*Taenia solium*) in intercostal muscle; pulmonary deposits of anthracotic pigment and granite; periods of malnutrition or systemic infection; and calluses on his feet. The specific cause of his

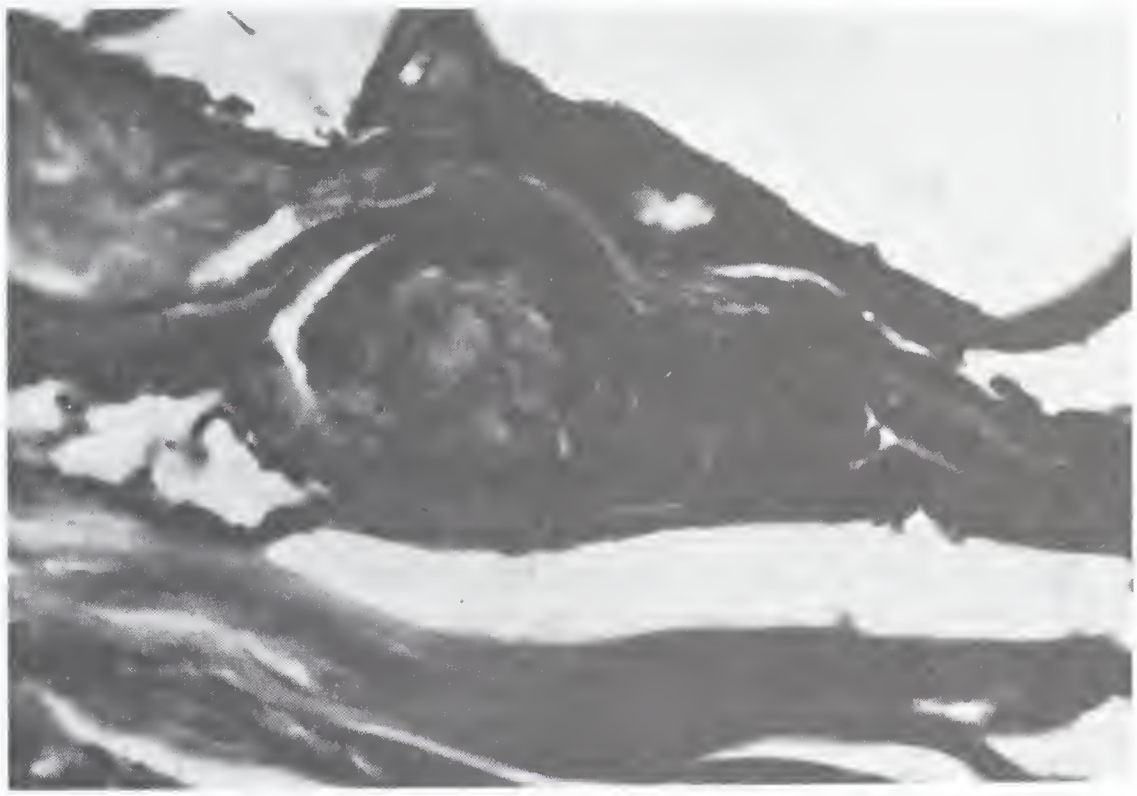
death was not determined.

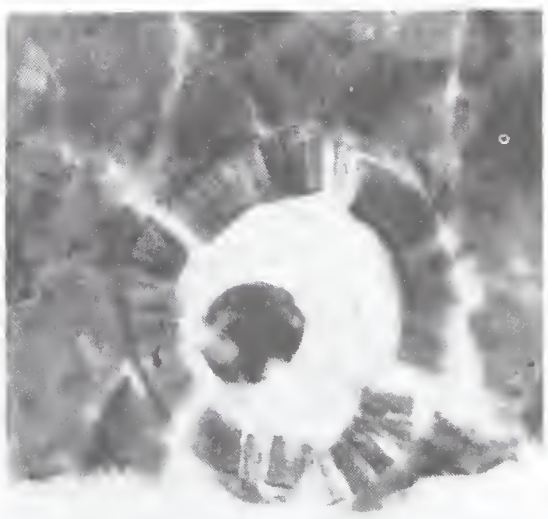
Nakht was not embalmed. Like many humbler Egyptians he was dependent on Egypt's dry and stable climate for his preservation. So reliable is that dryness in preserving organic remains, that the smell of delphiniums wrapped in the linens, is described to have arisen during the 1966 removal of one pharaoh from his museum case.

Nakht's freedom from chemical preservatives suited him especially for electron microscopy and blood group analysis, which revealed that he was of blood group B and had intact erythrocytes, the oldest known. Analysis of other extracts was less specific in identifying dietary lipids or antibodies against infectious agents.

A multidisciplinary approach is essential in drawing a maximum of information from "such a rare scientific endeavour", says the report in the *Canadian Medical Association Journal*. This team came from Toronto, Detroit, Philadelphia and Cardiff, with representatives of fifteen different medical disciplines plus the Royal Ontario Museum archaeologists who determined he was a weaver, from the heiroglyphs on his coffin, and established his probable environment during life. This mummy's "provenance", or origin and history, was never in question, but it can be an additional and arduous task to confirm that body and coffin belong together and come from where they are claimed to. Nakht's remains and many of the specimens and photographs procured during the dissection, can now be visited in a permanent display at the Academy of Medicine's Museum for the History of Medicine in Toronto.

Such a vast endeavour is not often undertaken. Many other mummies have been dissected, however, and dozens of diseases described.[2] A 1910 publication described a priest of Amon with a huge right-sided tuberculous psoas abscess, in association with partially-destroyed lumbar and thoracic vertebrae and an





CLOCKWISE FROM LEFT:
Sometimes masked against the mummy's curse(histoplasmosis), an international team performs an autopsy on a 3200 year-old mummy in Toronto; young Nakht's knees show unfused epiphyses and Harris's lines, evidence of recurrent ill-health; *Taenia* species eggs with hooklets were found in his G.I. tract; intercostal muscle contained numerous cysts of *Trichinella spiralis*.

All photos courtesy of the History of Medicine Museum, Academy of Medicine, Toronto unless otherwise noted.

angular kyphosis. Few tumours have been preserved, with the exception of a possible cystadenoma of the ovary, described in 1825 in an abdomen with strong evidence of "ovarian dropsy". Other soft-tissue findings have included gallstones, appendicitis, a skin eruption resembling smallpox, cicumcision (performed around puberty, so commonly that an uncircumcised king has tempted investigators to suggest that he might have had a bleeding disorder), a simple squamous papilloma of the skin, comedones and keratoses, Gram-negative bacilli in kidney abscesses, uric acid and oxalate stones in kidney and bladder, mitral valve calcification, and hypertensive changes including renal capsular thickening, glomerular fibrosis, renal artery sclerosis, myocardial fibrosis, and thickening and calcification of coronary arteries. Atheromata are extremely common.

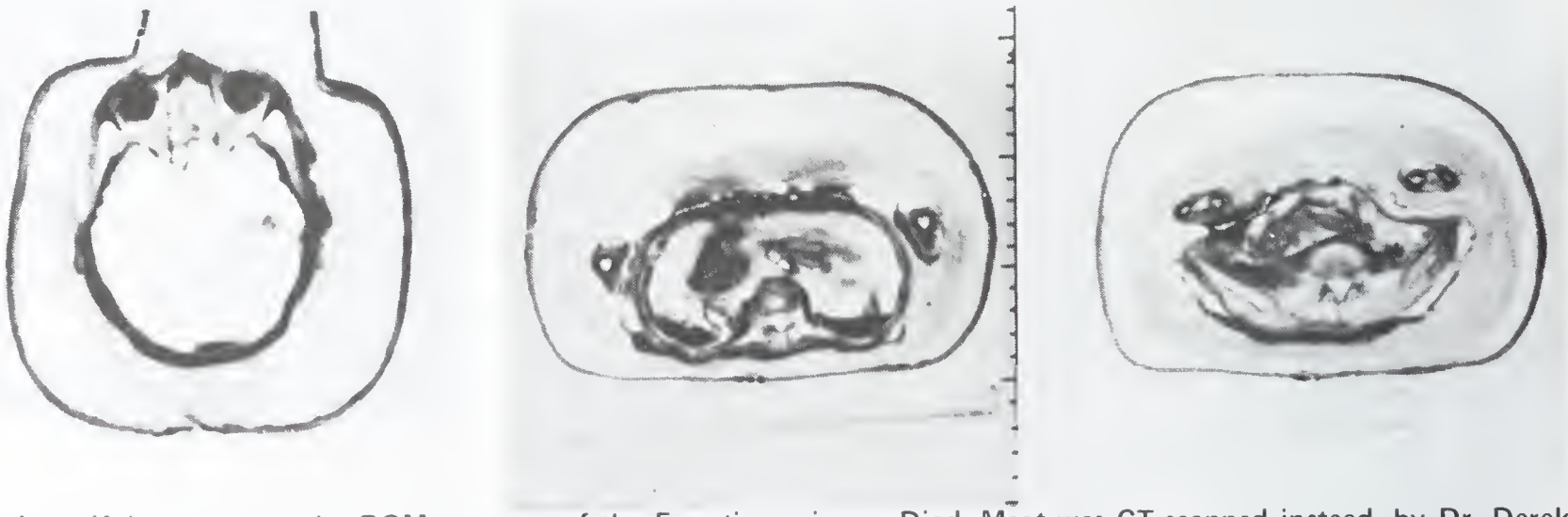
Bony and dental abnormalities are easy to diagnose on X-ray even through mummy wrappings. This, plus the fact the mummies often represent successive generations within well-documented dynasties, has offered unparalleled opportunities for genetic research, leading, for example, to a classic modern study on genetic and environmental factors in facial and dental development using the mummies as the case examples.[3] Conducted by a University of Michigan team in the late 1960's, this study had the unexpected side-effect of calling into question some of the long-accepted chronologies of the dynasties, finding that one king, supposed to have ruled till he was fifty, appears in X-ray to have the skeleton of an eighteen-year-old. The importance of provenance is again emphasized by this finding.

Skeletons

The world is full of bones unencumbered by mummy wrappings, and these are the raw materials of most paleopathologic investigations. The skeleton of a 7-foot-4-inch Anglo Saxon giant was recently loaned to the Academy of Medicine by the Ontario Science Centre for some paleopathologic detective work. There it was determined the giantism must have been caused by an XYY chromosome configuration,[1] as his normal sella turcica and limb proportions made pituitary abnormality unlikely. His many well-healed fractures--both ulnas plus right humerus, tibia, talus and calcaneus--were once thought to be evidence of pathological fragility from a pituitary abnormality, but are now described as probably the result of a fall from a high Roman wall in the Burgh Castle area where he was found.

Much more elaborate deductions have been drawn from abnormalities and fractures in other skeletons, Anglo-Saxon and international.[4] Long hours spent squatting with feet in extreme dorsiflexion are reflected in whole populations with a so-called "squatting facet" at the front of the distal end of the tibia, a groove extending the articular surface of the ankle anteriorly and upward. A corresponding surface changes the neck of the talus. In later Saxon times, the advent of chairs, benches and tables makes the presence of this facet a probable indicator of social or economic lower class or of long hours in the saddle. Bony changes may also be caused by a lifetime spent swinging the body to and fro over a mattock or hoe: a low bony ridge at the front of the shaft of the femur is described as recording the squeeze of painfully-developed thigh muscles. Warriors fighting with slings have an even more characteristic arm, with a curved, ridged and knotty humerus at the mid-shaft deltoid insertion. As Calvin Wells describes it, "The powerful deltoid muscle that is developed by the slinging produces a strong lateral curvature of the humerus and rough nodosities on its surface together with a splitting of the deltoid insertion eminence into two parts. This derives from the antagonized backward sweep and forward whirl which are the dual functions of the muscle when using this weapon.."

A heroic death scene of Sherlock Holmesian complexity, is drawn by Wells examining a battle-scarred medieval skeleton found at Ipswitch.[5] A sword slash across the parietals must have been delivered by a horseman, or to the victim kneeling, he says. The victim himself



Too beautiful to unwrap, the ROM mummy of the Egyptian princess Djed, Maat was CT-scanned instead, by Dr. Derek Harwood-Nash of The Hospital for Sick Children. The series shows (from left) the skull; the thorax, with a gold breastplate in the same shape as the vulture on her coffin; and the abdomen, with a gold plate over the undertaker's incision. Also of interest are wrapped bundles of organs in the abdomen and thorax, bones of vertebral column and arms; and, in the skull, the classic ethmoidal breach and packed eye capsules, with a prosthesis in the right eye and many extra-ocular muscles intact. She also had a scarab in her navel.

The skeleton of a battle-scarred but well-healed 7′ 4″ Anglo-Saxon giant was recently analysed in Toronto. A normal skeleton stands behind.

was a horseman, as shown by three signs: small squatting facets; an exostosis known as a "rider's bone" on the back of the femur where the vastus lateralis and short head of the biceps femoris tear away; and a healed fracture of the top of the right fibula, typical of those received in the crash of horses as right-handed riders grappled or slashed. Equally characteristic is the sign of foot-soldiers who always tried to keep on the left side of the horse, slicing through the mass of muscles of the thigh in a stroke evident on this man's femur antero-laterally, slightly below the middle. This favourite blow enabled a rider, now essentially without support on the left side, to be pulled easily from the saddle. This horseman's sartorius and inguinal ligament must have also been severed, by the cut that grooves the left ilium just under its anterior spine.

His fighting arm was disabled by a blow slashing away part of his right acromion, destroying the shoulder's stability with the deltoid and coraco-acromial and acromio-clavicular ligaments. The distal ends of radius and ulna were also partly cut through, suggesting a blow which fell as he was raising his forearm either to strike out or to protect his head. Finally, a lance or dagger-thrust between the eighth and ninth ribs on the right, entering from above and behind, must have given him a speedy death from lung and liver penetration, if the slash to the parietals or missing fifth vertebra was not the agent.

Most speculation on ancient bones is concerned with differential diagnosis of lesions of disease, rather than of trauma. Whole symposia have been held to discuss evidence of syphilis, hematopoietic, nutritional, soft-tissue and dental disease, tumor, infection and other conditions whose variable effects on bones have been further blurred by millenia of gnawing, water and root erosion, decay and demineralization. Among congenital lesions described have been spina bifida, hydrocephalus, achondroplasia, hip dysplasia; among debated lesions have been a perforated sternum(aortic aneurysm or congenital lesion?), and short, bent leg(polio or talipes equinovarus?). An abscess in a Peruvian's frontal sinus created a huge fistula distinguished from the far more common trephining hole by the underlying bone's roughened, pitted surface, suggesting years of suppurative sinusitis.

Trephination itself is a remarkably variable and widespread finding throughout Europe and the Americas. Debates turn on whether skull holes were made before or after death, by tumor, tuberculosis, syphilis or surgeon, for relief of osteitis or other physical defect, to let demons come out, or to relieve epilepsy, delirium or convulsions. Strong resistance to infection is evident in the high proportion of healed trephinations. Osteoporotic skulls showing "hair-on-end" radiological pictures have been ascribed to causes ranging from syphilis and rickets to the wearing of tight wigs and carrying of heavy loads on the head. Von Recklinghausen's disease, scurvy and ochronosis are considered highly speculative diagnoses at best, while there is better agreement on the changes found in rheumatoid arthritis, leprosy, ankylosing spondylitis, Paget's disease, and osteomyelitis.

Harris's lines afford another useful, though less specific, record of systemic disease.[2] In the young, illness or a period of starvation results in temporary cessation of cartilage growth in the epiphyses, and when new growth begins, a permanent transverse line of dense calcification is left. Described macroscopically before the discovery of X-rays, the lines were first intensively studied in 1933 by H.A. Harris, and looked for in every paleo-radiological study since.

They have even been used to correlate disease in different skeletons from the same archaeological level in a site.[6] Rather like growth rings in trees, lines in many sets of bones at, say, eight years apart, suggests epidemics or famines endured by all these people as children together, or in a recurrent eight-year cycle. Healthy skeletons are apparently rather boring to work with; "it is necessary to have an epidemic to get a lot of enjoyment out of prehistoric epidemiology", a speaker at one symposium said.

Childbirth adds an interesting dimension to study of the skeleton and mummy records. Fetal impaction, including breech presentation, is quite a common finding in many large burial deposits. One maternal skeleton described in 1908 shows signs of severe pelvic insufficiency; the fetal head, with overriding parietal and frontal bones, is engaged at the ischial tuberosities. A congenital Naegele's deformity has been diagnosed from the mother's fused right sacro-iliac joint and pelvic narrowing on the right.[2]

Unwanted pregnancy has also left a record which must naturally be speculative. An unembalmed sixteen-year-old Egyptian girl was found on dissection to be

carrying a six month fetus; her skull and forearms show multiple fractures, conjectured to have been inflicted by outraged male relatives when her illegitimate pregnancy became apparent.[2] Even more speculative is the reconstruction of a secret and lethal abortion from the skeleton of a young Gallo-Roman woman, in which a stiletto,was found at the height of the pubic bone, inside the pelvic cavity, pointing up. The fact that this stiletto was not removed suggests its presence was not suspected at burial, says one author.[5]

Less fancy is needed in the burial of a mummified Egyptian queen, to confirm the association between her unusually loose abdominal skin, the body of an infant nearby, and the woman's "enormously enlarged, almost certainly lactating, breasts."[2]

Bog People

Far from the drying sun of Egypt, in the peat fens of Demark and northern Germany, the "bog people" are a fascinating and puzzling symbol of Iron Age mortality.[7] These often well-preserved bodies, of which more than 150 have been found, have been dated by carbon-14 and pollen analysis at 1500 to 2500 years old. They are tanned a rich leathery brown, with facial features, clothes, bones and internal organs often so well-preserved that the peat-cutters digging them up have hastened to notify local police in case someone has been murdered recently. In other sites, the freakishly variable acidity of the bogs has dissolved the bones and organs leaving nothing but a sort of leather bag.

Many of the bog-people are believed to have been sacrificed to a pagan fertility goddess, probably as part of mid- or late winter rituals to ensure and hasten the return of spring. The 2000-year-old Tollund man is one of the most beautiful of these. His features are as composed and peaceful as those of a sleeping man's. A rope of leather thongs twisted together circles his neck in a tight noose. When found he was naked except for a skin cap on his head and a hide belt. Decalcification made it impossible to confirm if the noose was the cause of his death. His stomach contents, a half-digested porridge of more than 50 different kinds of seeds and grains, was originally thought evidence of the ritual character of his last meal, but the recent finding of an earthenware jug containing a similar mix in a Germanic home of the same period, suggests this gruel may have been typical of the vegetarian diet at that time.[8]

Other bog people appear to have died in similar fashion. One female, however, was pinned down in the bog alive, with a large swelling at the left knee where it was fixed down by a long crook, and other forked sticks clamping the other knee and elbows and the long straight branches across her chest and abdomen. Local people believed, from things they had seen themselves or been told by old people, this must have been "the body of someone who when living was regarded as a witch and whom it was intended to prevent from walking again after death." Long stakes had been seen sticking out of the bog here and there for centuries, and were known to be pinning down restless spirits buried beneath.

Good callus formation and considerable limb shortening characterize the well-healed humeral fracture in the Burgh Castle giant(shown on the previous page).

Other violent deaths are apparent in a fourteen-year-old girl of Windeby, found blindfolded and naked, with her head partially shaven, who now is believed to have been guilty of adultery; and in the Grauballe man, whose throat was cut from ear to ear with several strokes severing the gullet. His face is not peaceful like the Tollund man's, but flattened by the pressure of centuries(and some say contorted by pain and terror). Nonetheless when he was dug up an old farm wife immediately claimed she recognized Red Christian, a peat-cutter who had disappeared in 1887. It remained for carbon-14 to confirm the Grauballe man's age at 1650 years.

Rheumatoid arthritis and whipworms were found in Grauballe and Tollund man, and *Ascaris lumbricoides* eggs in other bog people. The Windeby girl had Harris's lines and a brain so perfectly preserved it could be sectioned by standard techniques for microscope study. Another young girl's heart permitted

Vertebrae from an Iroquoian ossuary near Kleinburg, Ontario are dated by Erindale anthropologist Dr. Jerome Melbye at around 1600 A.D. A compression fracture has resulted in T12-to-L2 fusion.

from The Healing Hand

A flint arrowhead in a human sternum. It struck the inner side of the bone, which means that the arrow came from the rear, passed between two ribs, and crossed the whole chest: a deadly wound.

from The Healing Hand

The Tollund man died 2000 years ago in a Danish bog: "the dead and the sleeping, how they resemble one another" (*Gilgamesh*).

dissection as precise as any modern anatomical preparation. Yet apart from these findings and the curiosity value of the fingerprints that appear actually to be enhanced by the pickling, the greatest fascination of the bog people appears to have been for anthropologists, who feel the sacrifices were connected with a growing fertility cult precipitated by Europe's worsening climate and bad harvests, which supported few animals. Iron deficiency anemia, probably resulting from a synergism of vegetarian diet and intestinal parasites, has been deduced from hyperostotic changes in the roof of the orbit in a great many north Germanic skulls, especially where the soil was iron-poor.[8] Tacitus, in *Germania*, described fertility rituals remarkably in accordance with the evidence of the bog people down to the drowning of the attendant of the earth goddess on completion of rites. The twisted thong nooses are often knotted to resemble the twisted neck-rings or torcs which always symbolized dedication to the fertility goddess in this period, and the fine features and neat hands and feet of the victims have been suggested as more typical of a priestly group than of work-worn soldiers and peasants.

In all these investigations, the whole story obviously depends on far more than X-ray and scalpel, CT-scan and microscope. Contemporary medical writings add a huge dimension, not here discussed, to perception of disease in the past. So do pots, statues, seals, amulets, cuneiform tablets, tomb-paintings and latrines. Descriptions of just how bodies lay, any object buried with them, local laws and legends, must be known if the circumstances of their death are to be understood. Knowlege of climate, history, environment, literature, can tell how they lived. The march of generations leaves a record far wider than its bodies; all this must be the concern of paleopathology.

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Munchausen: Baron and Syndrome

Bruce G. Pollock

The noted psychiatrist Sir Aubrey Lewis once grandly stated that all mental illnesses appear to contain and be distinguished by an element of gain.[1] Perhaps this thesis is no more graphically displayed to members of related medical disciplines than in Munchausen's syndrome. This syndrome consists of "repeated fabrication of illness, usually acute, dramatic and convincing, by a person who wanders from hospital to hospital for treatment."[2]

This syndrome was first described by Richard Asher in 1951[3] when, in the first full wake of the English national health system, itinerant patients consuming the public purse became unpleasantly apparent. He named this phenomenon after the Baron Karl Friedrich Heironymous von Munchhausen(1720-1795) who, as a retired cavalry officer, went from tavern to tavern spinning many fantasic tales of which he was the hero(apparently Munchhausen lost one "h" in his transition to medical immortality). The published stories attributed to Munchhausen were, in fact, actually written by Rudolph Erich Raspe(1737-1794) who while studying in Gottingen, met the amusingly mendacious Munchhausen.[4] Because of criminal charges against him, Raspe fled to England and, when hard up in London, wrote his first account of the baron's adventures in 1785.[5] Various editions were made by bookseller's hacks and the seventh English edition in 1793 is the usually accepted text, entitled *The Singular Travels, Campaigns, Voyages and Spoken Adventures of Baron Munchausen as He Relates Them Over A Bottle When Surrounded by His Friends.*[6]

Since Baron Munchausen never underwent any operations and was not concerned with illness, some have objected to the eponym as misleading, suggesting that the baron is, in fact, a prototype of "pseudologia phantastica with his apparently purposeless duels and harmless romancing."[7] Other proposed names have included "hospital hoboes", "hospital addiction" and "chronic fictitious illness". However the original term "Munchausen syndrome" is still the most widely used term'[8] perhaps because of its whimsicality.

It is beyond the realm of this article to explore the sociopathic nature and psychodynamics underlying this syndrome which has a more complex motivation than simple malingering. However since patients manifesting this syndrome are notorious for seeking out young, inexperienced doctors, it may be useful to briefly mention some features of the presentation of this syndrome. A highly dramatic and well-told medical history with many references to previous hospitalizations, drugs and diagnostic procedures is common. Although harrowing, the facts of the history do not seem to jibe, e.g., reportedly tremendous blood loss without pallour. These patients can often simulate histories congruent with multiple sclerosis and myocardial infarct. There are often numerous surgical scars present. While in hospital the patient often asks for a specific drug, frequently becoming abusive if denied it. The patient may discharge himself against medical advice, before diagnostic tests have been completed.

It is worth noting that their knowledge of medicine and their histrionic ability can be quite astounding, e.g., haematuria is simulated by pricking a finger and adding blood to the specimen; pyrexias by heating thermometers by placing hot towels in the axilla or even by self-inflicted abscesses which typically yield *E. coli* on culture. Occasionally even anticoagulants are taken. Gangrenous digits have been known to be produced by rubber bands.

While some clinicians may boast of their acumen in rooting out Munchausen's, undoubtedly many of these patients go undetected at great cost to physician manpower and at incredible expense to the financial resources of the health care system. OHIP currently keeps tabs on approximately one hundred of these cases, conceding that this is just the tip of the iceberg; any one Munchausen can cost up to $30,000.[9] Moreover, by the time that these patients have been identified, true iatrogenic illness may have been induced.[8]

Finally, it is worth noting that although their simulation of illness is concious, they are often driven by deep, unconcious forces in a manner analogous to alcoholics, drug addicts and other sociopaths. Thus an additional goal in finding these patients is to treat them for their true illnesses. Needless to say, this discovery entails a high degree of clinical judgement and skill rather than expensive diagnostic procedures.

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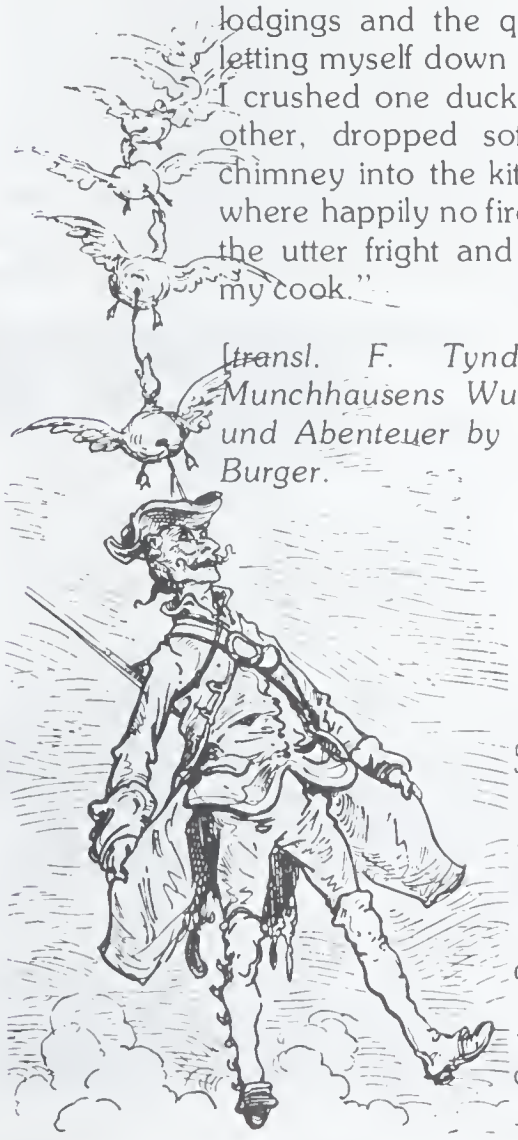
"And there, on a lake which I came upon in the course of a hunting expedition, were several dozen wild ducks, too widely scattered for me to hope to be able to shoot more than one with a single round; as luck would have it, I was down to my last bullet. Still, I would have liked to take them all as I intended to entertain a large company of friends shortly. Then I remembered that I had a piece of bacon left from the provisions in my game bag. I attached it to a fairly long dog leash which I unwound and thus lengthened by at least four-fold. I next concealed myself in the reeds on the shore, cast the scrap of bacon and had the pleasure of watching the nearest duck dash up and wolf it down. The others followed suit and because the smooth meat on the line emerged undigested, each swallowed it in turn. The tempting morsel made its way through the whole flock without coming loose. They were now strung out like pearls on a necklace. I pulled them ashore, wound the rope a half dozen times about my shoulder and waist and started out for home. As it was still quite a distance and as the weight of so many fowl bore down on me, I almost regretted having caught so many. But a most singular occurrence befell me which at first caused me not a little confusion. The ducks, being still alive, began, as they recovered from the first shock, to beat their wings vigorously and lifted themselves and me into the air. Many would have found presence of mind wanting in such a situation. I turned the circumstance, as best I could, to my advantage, and steering with my coat tails, made for home. When we were directly above my lodgings and the question arose of letting myself down without damage, I crushed one duck's head after the other, dropped softly through the chimney into the kitchen fire-place - where happily no fire had been lit - to the utter fright and astonishment of my cook."

[transl. F. Tyndel, ed.] from Munchhausens Wunderbare Reisen und Abenteuer by Gottfried August Burger.



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Social Policy for Mental Health in Ontario

Bruce G. Pollock

During the early years of this century, the whole question of mental illness was regarded with apathy and suspicion. "Once insane, always insane"; "insanity is a disgrace"; and "much of insanity is due to syphilis", were prevalent notions at the time.

Mental illness was not even regarded as a health problem, but was grouped with welfare and charitable institutions in the jurisdiction of the Department of the Provincial Secretary. Mental health policy was dominated by legal rather than therapeutic considerations, and "insanity" itself was regarded as a convenient term used by the courts to denote irresponsibility in the eyes of the law.

The surrender of legal rights and the loss of personal liberty inevitably distinguished the mental institutions from other types of hospitals. Lack of funds also set them apart, as decried in 1911 by Dr. C.K. Clarke, foremost psychiatrist of the day:

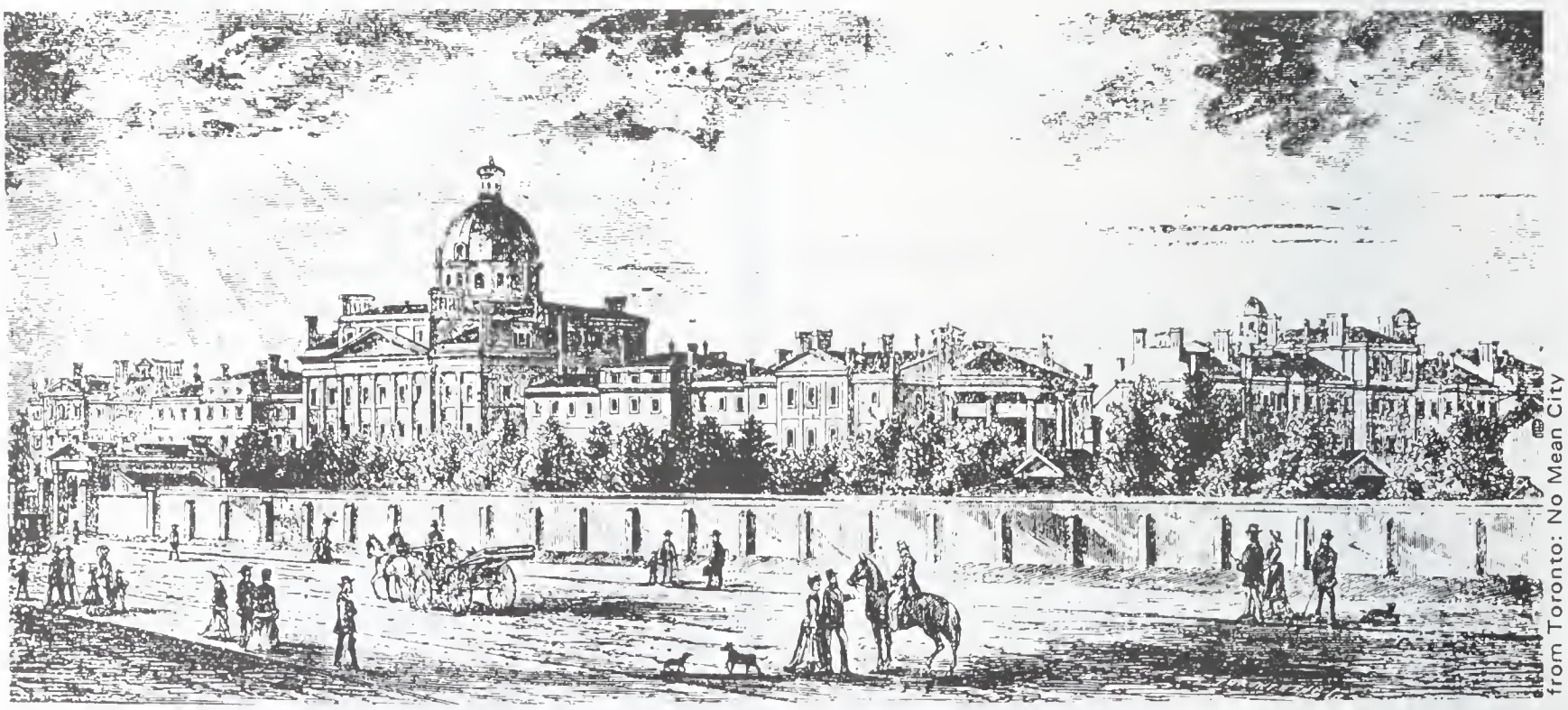
> We have Hospitals for Sick Children; Isolation Hospitals; Specialized Hospitals of all kinds, but no Hospitals for the acutely insane, endowed by either private or municipal funds.

Focus on Therapy Begins

The change began with development of provincial asylums in response to community need: the social problem of mental illness was removed from local communities because of their inability to cope with it. However, as the system expanded with more and larger hospitals, the lack of effective linkage between hospitals and local communities emerged as a serious weakness.

A second important change came with the Provincial Secretary's recognition that mental hospitals should not be merely places of custodial care. Accordingly, the law was revised to stipulate that "asylums", whose name denoted segregation from society, should henceforth be referred to as "hospitals", which implied places of treatment and cure. For the first time the term "hospital" was to include "a provincial institution for the care and treatment of insane persons." The provincial Hospitals for the Insane were given the statutory name "Ontario Hospitals" in support of the new approach, while the medical emphasis was stimulated by provincial appointment of a Medical Director of Ontario Hospitals whose main duties were to inspect and direct medical work and nursing care.

The developing notion of mental illness as an illness like any other, rather than a mysterious stigma inflicting disgrace on all it touched, was graduallly gaining momentum. It was suggested by the Canadian National Committee for Mental



from Toronto: No Mean City

Mental Asylum, 999 Queen Street West, 1846.

Hygiene that "Insanity is a condition no more to be ashamed of than pneumonia or a broken limb." Dr. C.B. Farrar, founding Director of the Toronto Psychiatric Hospital, believed that

> The modern institution is first of all a hospital. It has a receiving service where patients go through the same procedure which will be found in any good hospital. They are bathed and put to bed where they receive thorough medical examinations and are kept for a time under careful observation, in order that all treatment indications may be carefully met.

Another "new" perspective, that of prevention, was moving from public health into mental health policy. It was during these times that discoveries were being made of measures to counteract such contagious diseases as tuberculosis, typhoid, and diptheria. It was thus claimed in the presidential address at the first meeting of the Ontario Neuro-Psychiatric Association, that

> Prophylaxis is now the chief aim of medical science. If this applies to the General Hospital it is even more important that it should obtain in Hospitals for Mental Diseases.

"Mental hygiene", in its preventative aspects, was deemed to be "a matter of public health, or medical practice, and of social service."

Developing Social Considerations

Legislation was now changed to dispense with the cumbersome certification procedures in the cases of "any person suitable for care and treatment who voluntarily makes written application and whose mental condition is such as to render him competent to make application." It was believed that voluntary admission was relevant to the patient's recovery and sense of relief from "imprisonment, which the legal process necessarily entails." In contrast to the seemingly irrevocable nature of admission by the certification of two medical practitioners, the new policy was remarkably flexible in that a voluntarily admitted patient was not to be detained more than five days after having given written notice of his desire to leave the hospital.

The increasing interest in patient recovery and return to community life gradually led to policy changes affecting patients after discharge. The Department of the Provincial Secretary appointed two officials to supervise the environment in which patients were placed,

> with a view to making sure that all patients discharged, in so far as possible, will be living in comfortable surroundings and in an atmosphere of sympathy and response to the patient's requirements.

In the determination "to adopt the general hospital scheme in its entirety", nurses, acting as field workers, visited the homes of discharged patients, examining and reporting on their living conditions and, where necessary, helping them remedy conditions which predisposed them to illness.

The inauguration of the Out-Patient Department at the Toronto Psychiatric Hospital reflected provincial recognition of the "significance of the mental hygiene aspect of all social relationships." The objective not only to understand the "difficulties in human relations due to personality peculiarities or potential trends in their early development" but also to study "the individual in his group setting". This department co-operated with all social agencies in the city facilitating placement and improvement of living conditions, and assisting in recreational, financial relief and education programs, sometimes with continued supervision.

Impact of the Depression

An appreciation of the effect of environmental stress on mental health gathered momentum during the Depression years. Dr. C.M. Hincks, Director of the Canadian National Committee for Mental Hygiene, said in 1931:

> No one today can doubt the influence of economic conditions upon mental health and the problems they create which interfere with a satisfactory adjustment of life.

Countering the traditionally held notion that internal defect was the major contributing factor to mental illness, Dr. Hincks declared that poor heredity was the cause of mental disorder in "less than half of all mental cases." He reasoned, accordingly, that:

> Mental diseases are amenable to medical treatment and in many cases curable, just as physical ailments are. They are also to a large extent preventable.

Perception of mental illness as a health issue, as a result of the efforts of Dr. Hincks and other alienists (psychiatrists), resulted in the transfer of jurisdiction over mental health care in 1930 from the Department of the Provincial Secretary to the Department of Health in which a Hospitals Division was formed. Thus for the first time Ontario hospital policy came under the direction of physicians, including Dr. B.T. McGhie, former medical superintendent of the Ontario Hospital, Orillia, first Director of the Hospitals Division, and the Honorable Dr. J.M. Robb, Minister of Health.

The department's concern with prevention is evident in a comment by Dr. Robb that "The people of Ontario spend a total of $105,000,000 a year on the treatment of disease, but only about $3,000,000 on measures of prevention." He implied an intention to counteract this trend, and re-direct provincial policy from its sole emphasis on institutional confinement and custodial care of the mentally ill:

> While not neglecting those who are in need of treatment, the policy of the government of Ontario will be in the future to devote ever increasing attention to the prevention of disorders, both physical and mental.

The repercussions of the Depression on the mental hospital system were straining staff and facilities to the breaking point.

Travelling Clinic Program

The growing pre-occupation during the Depression years with alleviating the pressures on the mental hospital system and with re-integrating patients within their communities, evolved into the establishment of the travelling mental health clinic program throughout the province.

At this time, more optimistic views of the treatment and prevention of mental illness were being reinforced by notable achievements in reducing certain forms of mental disorder by the application of preventative measures. Dr. McGhie believed mental illness was essentially a public health problem. Thus the Hospitals Division of the Deparment of Health, following a preliminary organizing conference in June 1930, established mental health clinics in six Ontario Hospitals, adding a seventh at the Ontario Hospital, Mimico(now the Lakeshore Psychiatric Hospital), in 1933.

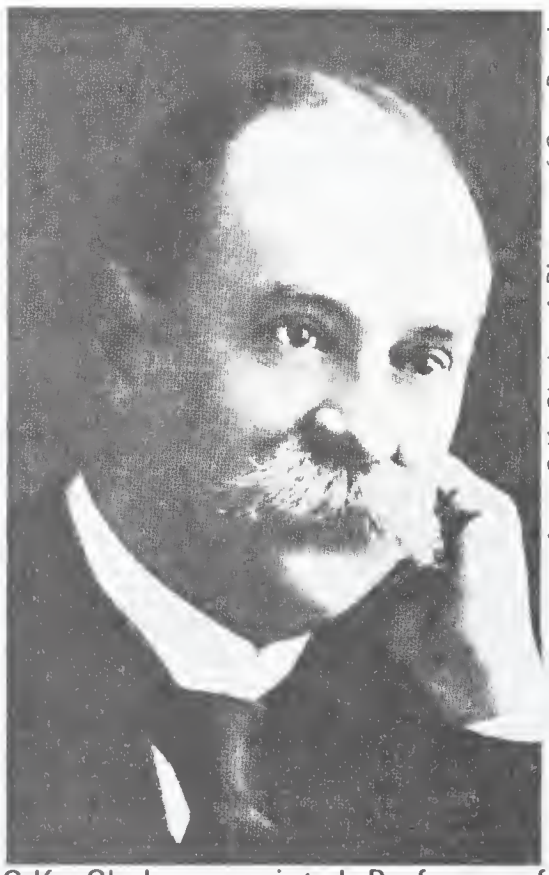
The broad mandate conferred upon the Mental Health Clinic Service is implied in the proviso under which they were authorized: "upon the request of any person, body, group, organization or corporation...to give advice on matters pertaining to mental health and mental disease or matters reasonably ancillary thereto." The designated duty of the clinic staff was to "assist agencies in looking to the mental health of the community" and to help in the "treatment of the earlier and more hopeful cases."

Every clinic was to be staffed with a psychiatrist as a director, assisted by a psychologist and social worker. The three operated as a team, all seeing each case and contributing to a solution. However, as the members of the clinic became more experienced in their respective spheres of activity, the pattern shifted to allow more specialization, so that the clinic director came to focus on psychiatric consultations with physicians, the psychologist on the preventative treatment of children, and the social worker on supervising the after-care of recovering mental hospital patients.

The dawning insight into environmental effects on mental health was strengthened profoundly by the policy underlying the Travelling Clinic Program. The concept was being advanced that human conduct was basically a social phenomenon determined by social factors; accordingly, "mental derangement" was beginning to be perceived as a "dislocation of the social relationship." The responsibilities of the field staff for the Mental Health Service included investigation of the home environment and past history of patients admitted to hospital, and also supervision of those who were discharged.

Another means of relieving congestion in the mental hospitals while aiding the patient's re-integration into community life, was probational discharge. This policy allowed a patient who had recovered sufficiently to leave hospital, to be placed on probational care with relatives or friends for up to six months, remaining under the supervision of the hospital staff.

The mental health clinics were an important element in the implementation of probational policy. The supervision of patients on probation developed, to a large extent, in the hospitals which had either a mental health clinic or a social worker which allowed supervision of patients on probation who were residing in areas remote from the hospitals.



from C.K. Clarke: A Pioneer of Can. Psych.

C.K. Clarke, appointed Professor of Psychiatry and Dean of Medical Faculty in 1908.

The War and Post-War Years

The end of the Depression, unfortunately, was also the beginning of the war years. This again placed a heavy burden on the existing mental health system. The restrictions of the war and early post-war years curtailed the implementation of social policy objectives. Expansion of mental health programs in both hospital and community stood virtually still through depletion in staff and facilities.

The travelling clinic program had to be curtailed, as a result of staffing problems and their repercussions. The clinics operated on a regular schedule of visits, meaning that assistance could not always be at hand when needed. Much valuable time was lost in travelling.

In an attempt to compensate, stationary clinics were established in the larger centres and an Area Consultant Program was begun. In the latter program consultant psychiatrists were assigned by the Hospitals Division of the Department of Health to selected general hospitals during 1946 and 1947. These psychiatrists provided consultation and treatment services for out-patients as well as in-patients, in the hope that this would make fewer admissions necessary. Assisted by a psychologist and social worker, the consultant psychiatrist was expected to give leadership in mental health work in the community he served.

Following the pattern of the travelling mental health clinics, this professional group of psychiatrist(Area Consultant), psychologist and social worker functioned as a clinical team under the direction of the psychiatrist. Patients were referred by doctors, law courts, schools, welfare organizations, or by friends. The roles of the staff in these "Community Mental Health Services" were similar to those in the travelling clinics, with the exception that the social worker became chief liasion person with the agencies and services in the community but had little to do with the the establishment of patients leaving mental hospitals.

World Health Organization

Provincial social policy's interest in promoting of community care for the mentally ill was fostered by the broad perspective proclaimed by the World Health Organization, founded shortly after the war. Its constitution stressed a comprehensive approach to health as "a state of complete physical, mental and social well-being, and not merely the absence of disease and infirmity." It also stressed co-operation among specialized agencies, governmental health administrations, and scientific and professional groups, and emphasised the education of medical staff, other other professional workers and the public. "A wider understanding of mental health principles and problems can do a great deal for the mental health of a community.",it said.

Closely allied with this broad perspective was an evolving concept of "positive mental health" which directed attention to "the promotion and maintenance of adequate adjustment to life", in contrast to the medically-oriented, more negative focus of mental hygiene on health as the absence of disease. This development was stimulated by the formation in 1948 of the World Federation for Mental Health, which believed that "positive direction in man's social development" could provide a set of objectives as scientific as those of the past.

The 1950's: back to the community

Prevention of illness under a "positive" mental health programme was described by the Honourable Paul Martin, then Minister of National Health and Welfare, as requiring "a concerted effort on the part of all who work in this field to remove from the human environment those factors which are harmful to sound mental health." This simple sounding appeal had several important implications. It called for medical science, in deepening its understanding of mental illness, to direct "more of its attention to the interrelation of body and mind." It thus encouraged a multidisciplinary approach and closer integration of community mental health programs with other health services. The preventative and "positive" emphasis also necessitated a renewed out-reaching into the community to promote mental health services on a more widespread basis in the 1950's, countering further emphasis on institutionalization.

The Mental Health Act, 1954

The Hospitals Branch of the province's Department of Health became the Mental Health Division in 1953. The name reflected the developing ecological focus and signified a broader interest of the Department in the determinants of mental illness and the promotion of mental health,[55] with a corresponding decrease in emphasis on pathological considerations.

The name and thrust of the Mental Health Act, introduced in 1954, did the same. The Act established a Division of Community Mental Health within the Department of Health, greatly expanded the province's responsibility for developing community services and made specific provisions for the development, supervision, and co-ordination of mental health services within the community.

A cardinal objective was the "dissemination of information among and assistance to local boards, medical officers of health, public hospitals and other persons and institutions." There was also authorization for the "education of the public in matters of mental health", the investigation of mental health problems, and the inspection and co-ordination of local services.

Mental health clinics became accepted as an essential component of community mental health services. Depending on their purpose, they were operated by various agencies including the Department of Health, local health units, mental hospitals, general hospitals, school boards, and voluntary organizations. The typical clinic consisted, as heretofore, of a psychiatrist, a psychologist, and a social worker.

This article is continued in the next issue of the Journal.

from C.K. Clarke: A Pioneer of Can. Psych.

First Psychiatric Clinic in Canada, 1909. The famed Ernest Jones was its Medical Director. The Clinic closed in 1913 when Jones left Toronto on Freud's advice.

(continued from page 69)

insomnia, all this frustrates erection...So it is the frequent mention of sexual intercourse, conversation about it and directing one's thoughts towards it, which further it...It is known that this act is not only instinctive, meaning that erection would be according to the nature of activity represented by nutrition or growth, so that the processes of the soul would have to be discounted...therefore in this respect the condition of the soul runs either counter to it or is beneficial to it, i.e. that it is grief, sadness, worry or the repugnant character of the woman chosen for sexual intercourse which greatly weakens sexual intercourse, while conversely there are certain conditions of the soul which stimulate one for it and affect strong excitement."[4]

Maimonides not only advocated diet, exercise and pleasant thoughts as a means of maintaining health, but also described many diseases and their remedies, stating clearly which he thought were safe to use, which were of no use and which should be left to the experienced physician. He cautioned against self-medication: "If you undertake to medicate these minor conditions, there are two possibilities, either your act will be erroneous...and you will lose and suffer injury, or your action will be correct and you will restore to nature its natural function, but at the same time train your body to lag behind and to do the normal only with outside help."[5] His descriptions of diseases, such as the time course of rabies[3] and the following discussion of pneumonia, are still appropriate. "There are many who take lightly the liquid discharge from the nose as in their ignorance they do not understand what usually develops from it if it goes down to the nose, or the hoarseness and coughing if it goes down to the trachea. It is best that one be careful of such discharges in winter and summer-time, and put on his clothes while he is still in the bathroom. And one should always protect his head from the strong cold that comes with a discharge...and all the discharges...usually runs down into the cavities of the lungs and fills them up, because of the abundance of the moisture that flows down and because of the weakness of the receiving organ. They weaken the expelling force that would remove them by coughing and thus asphyxiate the man and he dies. Or they create a pause which is a shortness of breath in the lying position."[5]

Maimonides compiled a list of drugs(this work has been questioned as spurious) which lists two thousand drugs, giving their names in Spanish, Greek, Arabic and other languages.[4] For the vizier, he wrote a guide to the first-aid treatment of poisoning, especially snakebite, which the government felt would help the common people who frequently died for lack of effective treatment. In this he describes a first-aid treatment that is still a part of folk medicine. "When someone is bitten immediate care should be taken to tie the spot above the wound as fast as possible to prevent the poison from spreading throughout the body; in the meantime another person should make cuts with a black lancet directly above the wound, suck vigorously with his mouth and spit out...then the stomach of the victim should be emptied by means of mild vomitives.

Raſtatus Rabi Moyſi quẽ domino & Magnificho Sol dano babilonie tranſmiſit Poſtquã admanus minĩiſer uitoris Moyſi iſrahelitici cordubeni preceptum prin cipis ac honorati regis peruenit cui deus glorioſus honores augumentare dignetur : quod mihi traſmiſit per quemdam ſuum nuntium .ſ. ut ſibi ſcribere deberem re/ gimen tale cui ꝑfecurę & aſque dubitatio ne aliqua poſſit decuris egritudinum que nouiter ipſi meo dnõ reuerendo ſuꝑuene runt fideliter confidere . aquo deus digne tur ipſas & oẽs alias egritudines elongare & ſanitatem perfectam cum eodem tempo ribus uitę ſuę permanere .Mihi quidem ſi gnificat dictus nuntius quod dominus me us reuerendus cõqueritur de duritię ſeu ſic citate ſuę naturę intãtũ quod nõ põt aſſel/ lare niſi cũ ſummo ſtudio & labore & quod innouata ẽ ẽt eidem melãcolia & male cogi tationes . & quod appetit eſſe ſolitarius & timet mori : & quod debilitatus eſt ſtoma cus eius taliter quod cibus corrunpitur ĩeo abſque cõpleta digeſtione/Quare ſuperbis

from Regimin Sanitatis

The Latin translation of *Regimin Sanitatis*. It appeared as Incunabula, Florence 1477.

Should they fail, oil or butter should be used, but care must be taken not to cause vomiting under great stress."[3] The work also described other types of poisoning and gave many simply prepared remedies and antidotes.

Another treatise that Maimonides was commissioned to write was on hemorrhoids. "There was a youth...in whom the affliction of hemorrhoids occurred at the mouth of the anus that interested me in his problem...These irritated him on some occasions and he treated them in the customary therapeutic manner until the pain subsided and the protrusions became reduced...Because this recurred many times he considered having them extirpated in order to uproot this malady from its source...I informed him of the danger inherent in this...because the causes that gave rise to the original ones remain and thus new ones develop."[7] The work states that hemorrhoids are the result of faulty digestion. Maimonides recommended a diet and a variety of local applications to soothe the discomfort.

One last work that is unfortunately not available is Maimonides treatise "On Fits", which is concerned with depression and its therapy and is supposed to be a significant work in the history of medical psychology.[4]

Men of Maimonides' stature in one discipline are rare. Had only his medical works or his philosophical writings remained he would still be regarded with awe. That he managed to reach the peak of both fields in his era, and to synthesize religion and science into one humanitarian discipline, surely gives him a place among the truly great men of all time.

The following portion of Maimonides' physician's prayer sums up his attitude towards his vocation as completely as anything possibly could.

May the love of my art actuate me at all times; may neither avarice, nor miserliness, nor the thirst for glory or a great reputation engage my mind; for, enemies of truth and philanthropy, they could easily deceive me and make me forgetful of my lofty aim of doing good to Thy children. Endow me with the strength of heart and mind so that both may be always

ready to serve the rich and poor, the good and the wicked, friend and enemy, and that I may never see in the patient anything else but a fellow-creature in pain.

If physicians more learned than I wish to guide and counsel me, inspire me with obedience toward the recognition of them, for the study of the science is great. It is not given to one alone to see all that others see. May I be moderate in everything except the knowledge of this science; as far as it is concerned may I be insatiable; grant me strength and opportunity to always extend its domain; for knowlegede is immense and the spirit of man can also extend infinitely, to daily enrich itself with new acquirements. To-day he can discover his errors of yesterday, and tomorrow he may obtain new light on what he thinks himself sure of today. O God, thou hast appointed me to watch o'er the life and death of thy creatures; here am I, ready for my vocation.[2]

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Book Reviews

The Houseman's Tale
Colin Douglas
1975

"Creech began his Monday afternoon ward round right on time and by three minutes past the hour it was established in grooves worn by the habits of decades: anecdote and musings of an old consultant interspersed with wild sallies into the small print of medicine by his registrars. The round reached the acute beds at the nursing station via the fall of Singapore, a possible case of pseudoxanthoma elasticum, athelete's foot among the Chindits and an unproven but brilliantly suspected case of Bartter's nephropathy which if confirmed would be the third recorded in the UK literature."

Dr. David Campbell is the houseman, a mix of dry cynicism, soft sensitive intellect, unbridled idealism, and human passions. We accompany him through his internship at an Edinburgh teaching hospital: "It had retained, along with its accumulated benefactions and a certain genteel parsimony, its own dry narrowness of spirit and the complacency embodied in its full title, The Royal Charitable Institute for the Care of the Indigent Sick."

Sacred cows are led to slaughter, and the differences among real, ideal and indifferent are exploded in a candid, hilarious fashion. With scalpel-sharp wit Colin Douglas(his nom de plume) dissects the senior year of a medical education, a favourite target being the pomp and circumstance of the profession.

The medical consultant is a cantankerous sort:"Creech began his ward rounds on time because he had nothing else to do in the mornings, and because, if he could be said to have a personality, it was probably an obsessional one."

The surgical chief, Alester Ravelston Orr, "was a famous surgeon, though no one could recall in detail why he had become one. There was a theory that if an ancient medical teaching centre did not at some point in time happen to possess one, he might be invented."

Campbell briefly faces the choice between surgery and medicine. He is called to consult on a case of acute appendicitis: "She was intelligent, clean and pretty; a pleasure to clerk and the victim of a disease that was easily dealt with but could kill if neglected. Compare and contrast the average medical admission: decrepit, demented and riddled with irreversible degenerative pathology. Surgery might be fun." However the houseman's knowledge of anatomy fails him in a crucial moment, "'What's that, Campbell?" He was pointing to something that looked like the leftovers from a cheap cut of liver.

"Profunda, sir?"

"Profunda?" Millimetre by millimetre the jaw was coming forward again.'"

Aside from the occasional dressing-down on the wards or operating theatres, Campbell does a moderate amount of undressing on his own time. "He reflected on the wordless satisfactions of the encounter, all the variations of tempo and posture, the calms and exhilarating frenzies that had evolved: no need between them for the sort of grunted muddled instructions best left to furniture removers. Whatever else one thought of promiscuity, it certainly raised the general standard of performance."

Though there is no plot, the book has a unifying element. On the first page, the author deports himself cavalierly in one bed while the last page finds him on a mattress of a different nature. The progression constitutes a kind of reflection on mortality.

For those actively engaged in the clinical melee, this novel, with its wry sense of fun, should prove rewarding reading.

Jeff Edelson

Five Centuries Ago

¶ Flegmaticus.
Vnſer complex iſt mit waſſer mer getan
Daruñ wir ſubtilikait mit mügen lan.

¶ Sanguineus.
¶ Vnſer conplexion ſind von luſtes vil.
Darumb ſeÿ wir hochmütig one zyl.

¶ Melencolicus.
¶ Vnſer complexion iſt von erden vëch
Darüb ſeÿ wir ſchwärmütigkeyt glach

¶ Coleticus.
¶ Vnſer complexion iſt gar von feüer
Schlahẽ vñ kriegen iſt vnſer abentëür.

The four temperments from a German calendar of 1478.

Two Centuries Ago

from Garrison's History of Neurology

Plate from [*Basi Encephali*]. Samuel Thomas von Soemmering, 1755-1830, of Prussia, wrote his thesis on the origin and classification of the twelve cranial nerves. He "believed the cranial nerves originated from the walls of the ventricles or from the cavities themselves, and that the ventricular fluid was the seat of sensation and nerve impulses were motions in the fluid."

One Century Ago

Jean Martin Charcot, French neurologist and clinician, 1825-93, with Jean Albert Pitres, French neurologist, 1848-1928, demonstrated the existence of cortical motor centres in man. [*Contributions a l'etude des localisations dans l'ecorce des hemispheres du cerveau.*] Rev. mens. de med. et chir. Paris, 1878, ii 801.

William Beran Lewis, English pathologist, 1847-1929, described the giant cells found in the precentral convolution of the brain. [*The Cortical Lamina of the Brain.*] Proc. Royal Soc. London, 1878, xxvii 38-49.

William Miller Ord, English surgeon, 1834-1902, coined and introduced the term myxoedema. [*On myxoedema, a term proposed to be applied to an essential condition in the "cretinoid" affection occasionally observed in middle-aged women.*] Med.-Chir. Tr. London, 1878, Lxi 57-78.

Cover:
Frederik Ruysch, 1638-1731, Dutch anatomist, built this display of bladder, kidney and gall stones. The arteries represent trees. In reflecting on the catchword, 'Death spares no man, not even the defenceless infant', the fetal skeleton on the right wipes its tears with a piece of omentum.
from Image Roche, Vol. 43, Nov. 1971.